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ABSTRACT

This paper examines classroom strategies for distance learning. It discusses the importance of participant interaction in all learning, and offers examples of interactive distance-learning situations. Focusing on interaction of learning, the paper is intended to assist public schools in assessing various distance-learning programs, including computer conferencing, fiber optic cable, and audio-, audiographic-, or satellite teleconferences. Traditional classroom interaction is channeled in a variety of ways. Interactive participation stimulates the learning process in solving problems, encourages constructive criticism of solutions, and strengthens group commitment. Distance-education environments often become passive experiences for learners, but instructional strategies can be used to improve interaction in teleconferencing. Categories of teleconferencing interaction include the following: (1) learner interaction with the presenter; (2) learner interaction among persons at a local site; (3) learner interaction with persons at other sites; and (4) vicarious interaction. Strategies such as panel discussions, role playing, and question-and-answer sessions also can be used to bring variety to interaction. The document concludes that quality distance education depends upon the degree of interaction. The document includes a bibliography of nine references. (TES)

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INTERACTION IN TELECONFERENCING--THE KEY TO QUALITY INSTRUCTION*

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Introduction

Distance learning is increasing rapidly at all levels of education, both in the U.S. and worldwide, and each system may utilize a wide variety of electronic media for delivery of the programs. These media may include, among others, audio and video teleconferencing, audio and videotapes, computer conferencing and electronic mail. Among these media we find that teleconferencing is gaining in use and value because it links teachers with their remote students in "real time" with voice and/or video interaction.

Kinds of teleconferencing include audio conferences, audiographic conferences, video conferences, and computer-mediated conferences. Frequently, teachers use a combination of several forms of teleconferences according to the material presented.

Participation and interaction are essential elements of the teaching-learning process, whether in a classroom or at a distance. Skillful teachers in face-to-face settings include interaction both with and among their students as a normal procedure. Interaction via teleconferencing, when a teacher is separated from the students, requires careful design of the instruction well in advance of the teaching situation.

The focus of this presentation is as follows:

1. To show the importance of participant interaction in all learning.

2. To show examples of good interactive distant learning situations in order to assist public schools in assessing the media programs offered to them.

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3. To provide information on interaction for schools which are or will soon be originating distance learning courses via fiber optic cable, audio teleconferences, audiographic teleconferences, satellite teleconferences, or computer conferences.

Importance of Interaction to Learning

Interaction in the traditional classroom is handled in a variety of ways. The teacher continually seeks to involve students in the lesson by using direct questions, interpreting non-verbal communication, varying the instructional methods, and monitoring individual student performance. While many of these steps are not impossible in distance learning settings, the means of achieving them are vastly different (Ostendorf, 1989).

All too often, the distance education environment becomes a passive experience for the learner. Educators using distant technology often select the lecture mode, which emphasizes how to memorize and recall information. In a recent study at the University of Oklahoma, for example, lecture was used in two-thirds of the courses taught on television, and in more than two-thirds of the courses, the faculty reported that they used only instructor-centered strategies (Dillon, Hengst, & Zoller, 1989).

Results of nationwide surveys, such as "A Nation at Risk" and the Holmes Report, show that the public schools are not teaching students how to make use of higher order cognitive skills. Benjamin Bloom's (1956) taxonomy of intellectual responses identifies these higher order cognitive skills as analysis, synthesis, and evaluation. For educators to overcome deficiencies in our nation's schools, learning objectives must address problem solving and evaluation skills and must assist students in "learning how to learn." Interactive participation stimulates the learning process in solving problems, encourages constructive criticism of solutions, and strengthens the commitment of a group to action.

The importance of interaction in distance education to public school administrators is emphasized in a 1989-90 survey of superintendents in 415 California school districts. Robert Threlkeld (1990) reports on the results of this survey conducted at the California State Polytechnic University Distance Learning Center, Pomona. The questionnaire addressed the relative importance of learning attributes in satellite-delivered education for the high school student. The 58% return listed "ability to talk to the instructor during the televised class" as the attribute most important in distance learning, second only to "available on-site library resources." Threlkeld further states in his analysis of the survey that interaction between instructor and students is of vital importance to all respondents.

Widely regarded as an authority on teleconferencing, Mavis Monson emphasizes the theme of "interaction and how to make it happen" in her practical guide to teleconferencing, *Bridging the Distance* (Monson, 1978). The four interactive design components for successful teleconferencing are:

- Humanizing, which focuses on the distant individual and generates group rapport;
- Participation, which provides opportunities for the spontaneous interaction between participants;
- Presentation style, which emphasizes communications that students can receive, understand, and remember; and
- Feedback, which is a continual process of getting information about the message and completes the communications loop with the participants.

Interaction in Teleconferencing

We will now look at instructional strategies that emphasize interaction in teleconferencing so that effective learning can take place within the upper levels of the cognitive domain.

We have identified four categories of interaction in teleconferencing:

a) Learner interaction with the presenter,

b) Learner interaction among persons at a local site,

c) Learner interaction with persons at other sites, and

d) Vicarious interaction (learner intraaction).

We will look at each of these categories in turn, and provide at least one example from each category on audiotape or videotape.

a) Learner interaction with the presenter

The most common form of interaction in teleconferencing is communication between the presenter and the participants, who will probably be located at a number of sites.

Our first example is a brief audio clip demonstrating a learner-presenter interaction by Bruce Woods, a Kansas State University instructor. The tape is from a class session of a Kansas Regents Network TELENET course, "Midlife Experiences." There are 40 adult students enrolled at 20 Kansas sites. Dr. Woods establishes rapport with the distant students so that they easily

adapt to the discussion mode. Class discussion usually focuses on the reading assignments.

The Mt. Isa School of the Air in Australia is another example of learner interaction with the instructor. In 1986 eight sixth grade students from the remote northern part of Queensland, Australia, were involved in a satellite educational trial. In the example that follows, students had read novels by an author, David Cox, who writes about life in outback Australia. The video program is based on the quiz show "To Tell the Truth," in which the students plied the three guests (only one of whom was the real David Cox) with questions based on the novels (Lundin, 1989). In addition to providing direct learner-presenter interaction, this model demonstrates one way that students can interact with individuals who cannot be with them in person but who can participate in a teleconference.

A third example of student-presenter interaction is a 1988 biochemistry course in cell biology from Boston University School of Medicine to Beijing Normal University in China, using audiographic conferencing, which combines live interactive voice, text, and graphics over a telephone line (Weld, 1988). This presentation demonstrates that even vast geographical and cultural distances between the learners and the instructor become irrelevant when interaction is present.

b) Learner interaction among persons at a local site

This interaction model may take several forms. It may happen simultaneously with a video conference, it may be a breakaway session during a teleconference, or it may be a wraparound activity before or after a teleconference whereby local panel discussions and reaction panels can promote action at local and regional levels.

The first example of this interactive model is the high school Spanish course taught by Chuck Thorpe at Kansas State University. The Spanish class reaches high schools in five states via the Kansas Regents Educational Communications Center satellite uplink from Kansas State University. Each of the participating schools has a teaching partner in the classroom who meets with the students during the two weekly video class periods; the teaching partners also meet with the students between class sessions for work assignments and practice. Thus, local site activities take place during the satellite video class session and separately from it.

Another example of interaction at the local sites is a series of teleconferences held by the School Library Association of Queensland (SLAQ), Australia, for professional development of its members.

The TeleSLAQ model was developed as follows: each participant is sent pre-conference materials upon registration, a pre-conference group discussion is held for one hour at each local site to prepare for the one-hour video conference link-up which follows, then a post-conference group discussion continues for one hour to encourage follow-up by the participants. With the vast distances of Australia, TeleSLAQ conferences have proven invaluable.

A third example of learner interaction at the local sites is evident in typical national satellite teleconferences. These teleconferences can be personalized to local situations through "wraparound" activities, whereby local panel discussions and reaction panelists can stimulate action planning at local and regional levels. Recent examples of local interaction before or after such teleconferences at KSU have included the Kansas "Governor's Conference on Libraries and Information Services" and "Campus Responses to Racial Harassment and Intimidation."

c) Learner interaction with persons at other sites

In this interaction model the presenter encourages discussion among the participants at the various teleconferencing sites.

An example of this interaction is a model developed by two modern language instructors, Loren Alexander and Doug Benson, teaching via audioconferencing on the Regents Network TELEbridge at Kansas State University. Graduate foreign language courses are offered each semester for the remote public school teacher wishing professional updating. The classes are purposely small to allow students optimal opportunity to converse in the foreign language.

The interactive model is as follows: the instructor sets the stage by explaining the process and guidelines (5 minutes) and then a student, or "Reporter," presents a 5 minute report on an assigned topic, ending by posing issues or questions to be considered by others. Two other students, "Responders," are then each given 5 minutes to comment, request information or clarification, or relate an experience on the topic. The reporter and the instructor alone can make comments during this period. The next 10 minutes are allotted to class discussion on the topic, and during the final 5 minutes, the instructor summarizes the discussion, for a total 35-minute period. The model provides for ongoing audio interaction of all members of the class, regardless of where they are located.

The audio clip of class discussion we will hear is from Dr. Loren Alexander's course entitled "The Foreign Language Curriculum: Culture," which has eight students, three of whom are at a distance.

A second example of discussion among participants at various teleconferencing sites is the first ongoing course across

international boundaries delivered by satellite teleconferencing which began in March, 1988 between Tufts University in Boston and Moscow State University in the Soviet Union. The "Global Classroom Project" is a series of live, interactive televised programs bringing invited guest panelists and students together from the two countries to discuss issues related to nuclear weapons and global environment. We will see a clip of the live two-way video teleconference that demonstrates full video and sound interaction with all participants.

Computer mediated conferencing offers yet another example of participant discussion among sites. This form of conferencing makes use of asynchronous discussion via computers, either through computer conferencing systems, electronic mail, or even computer bulletin boards. Beginning in 1988, the British Open University conducted the course, "An Introduction to Information Technology: Social and Technological Issues," with the conferencing system, CoSy, from University of Guelph, Ontario. In this course, regional tutors (or instructors) sent conferencing messages to their students, and students completed assignments and communicated with each other by computer (Mason, 1990).

d) Vicarious interaction (learner intraaction)

This interaction takes place as distant members participate silently, or vicariously, when questions are asked or recitations are made by others. Such interaction is common for the active learner whether at a distance or in a traditional classroom. An example of this vicarious interaction took place during a satellite program produced by the KSU College of Engineering. The topic was "Quality Control" and the presenter was a well-known engineering consultant from Chicago, Mr. Keki Bhote. To facilitate the learning process and to provide variety to the four-hour program, a moderator was on screen with the presenter. The moderator asked such questions as an audience would have asked, giving the presenter opportunities to clarify and explain concepts further.

Conclusion

Quality distant education is dependent upon the interaction and participation of the learners, similarly as in traditional face-to-face instruction. It is essential that the distant educator purposefully designs this essential ingredient into the instructional program. Four kinds of interaction have been presented and examples emphasizing each kind have been demonstrated, though each of our examples contained several kinds of interaction. The skillful designer builds variety into the instructional modules, for students learn by way of many different presentations.

Varying the teaching strategies brings variety in interaction. Several frequently used strategies are question and answer, panel discussion, reactor panel, interview, case study, role play, brainstorm, and pre- and post-activities. Each of these strategies can be used to demonstrate the four categories of interaction discussed above.

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